Name: _____   Date: _____

Polynomial Operations PRACTICE (version 21)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -3x^5 + 9x^4 + 2x^3 + 5x + 10$$

$$q(x) = 6x^5 + 3x^3 + 4x^2 - 5x - 9$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 9x^2 + 8x + 3$$

$$b(x) = -4x + 3$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 21)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$f(x) = 2x^3 - 18x^2 + 16x - 10$$
$$g(x) = x - 8$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 8}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R.

5. Let polynomial $f(x)$ still be defined as $f(x) = 2x^3 - 18x^2 + 16x - 10$. Evaluate $f(8)$.